

General Information

1992
Video: 4 Heads Rotary
Audio: Fixed Head 1CH
Covers Models
Akai VS-F441/F450
Akai VS-F455/F490
Akai VS-F497

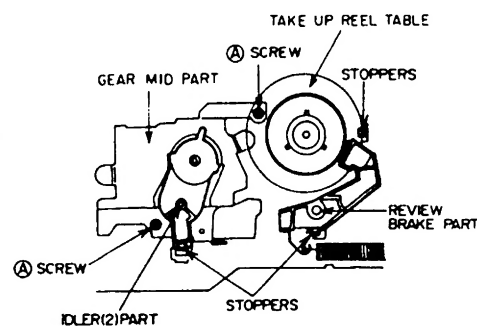
Matrix	
Item	See Model
Mechanical Parts View	Akai VS-422/425 89/90 Book.
Mechanical Adjustments	Akai VS-F10/F11 91/92 Book.
Replacement of Idler	Akai VS-F410
Back Tension Adjustment	Akai VS-F260
Power Supply - VS-F490	Akai VS-F260
Power Supply - VS-F440	Akai VS-F260
Power Supply - VS-F441/F450/ F455/F490/F497	Akai VS-F260
Main Diagram 1/3	Akai VS-F260
Main Diagram (B)	Akai VS-F260
Operation (A)	Akai VS-F260
VPST/PDC	Akai VS-F260
VIF Unit	Akai VS-F260
R/C Others	Akai VS-F260

Head Motors and Miscellaneous	
Part No.	Description
All models:	
BV-V1123A410B	Lower Drum BLK X450DGN
BV-V1123A420B	Upper Drum BLK X450EGN
BM-401296J1	Motor E20EL89 (Drum Motor)
For Models: VS-F440EA/EDG/ED1/EK/EM/EO/ EOG-V/EOH VS-F441EA/F450-EOH VS-F455EOH	
HR-405340J	Head Combo HVMZA1121A
HE-390013J	Head E HVFME0020A
For Models: VS-F480EK-V/EOG-V VS-F490EM/EO/EOH/ES VS-F497EOH	
HR-405340J	Head Combo HVMZA1121A
HE-390013J	Head HVFME0020A
For Models: VS-F480EK-V/EOG-V VS-F490EM/EO/EOH/ES VS-F497EOH	
BM-400682J1	Motor DFX-67B3VWB1 (Capstan Motor)
BM-387503J	Motor Part (Loading Motor)

Recommended Safety Parts		
Item	Part No.	Description
Models: EA/ED1		
D1 - D12	ED-511907	D Silicon 1N4002 100/1.0A
D16	ED-404029J	D Zener H UTZJ10B T26
D18	ED-511907	D Silicon 1N4002 100/1.0A
FR1 , FR3	ER-408375J	R Fuse V TO5RF25SCPVT1/4WR12K
FR2, FR4	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR5	ER-400605J	R Fuse V TO5 ERD2FCV1/4W15ROG
TR1	ET-381175J	TR 2SD1856
TR2, TR7	ET-366365	TR 2SB1185 E,F
TR3, TR4, TR5	ET-405622J	TR 2SD2061 E,F
TR6	ET-391025J	TR 2SD2012
Model: EM		
C101	EC-389414J	C CE V DE7 B102K 400AC
D3, D4	ED-511907	D Silicon 1N4002 100/1.0A
D6, D11	ED-386226J	D Schottky RB100AT-32T26 40/1
D8	ED-386226J	D Schottky RB100AT-32T26 30/1
D16	ED-307572	D Silicon H 1SS131
D17, D18, D71		
D72, D73, D74		
D101	ED-511907	D Silicon 1N4002 100/1.0A
FR1	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR2	ER-408375J	R Fuse V TO5RF25SCPVT1/4WR12K
FR3	ER-400605J	R Fuse V TO5ERD2FCV 1/4W15ROG
FR4	ER-400689J	R Fuse V TO5RF25SCVTP1/4WR68K
FR5	ER-405441J	R Fuse V TO5RF25SCVTP1/4WR68K
FR101	ER-400689J	R Fuse V TO5RF25SCVTP1/4WR68K
FR102	ER-401039J	R Fuse V TO5ERD2FCV 1/4W 4R7J
RL101	EQ-400153J	Relay POW AG2013 1TR 12V
TR1, TR5		
TR9, TR13	ET-366365	TR 2SB1185 E,F
TR2, TR7	ET-405622J	TR 2SD2061 E,F
TR4	ET-366168	TR 2SD1292 Q,R
TR12	ET-405622J	TR 2SD2061 E,F
TR107	ET-404195J	TR 2SC4486 S,T T05
IC1	EL-381575J	IC BA6121
19A	BT-410487J	Trans POW V1130 EA (EM)
19B	BT-410489J	Trans POW V1130 ES (ED1)
19C	BT-410488J	Trans POW V1130 EM (EM)
Models: F440EK/F490ES		
D1 - D12	ED-511907	D Silicon 1N4002 100/1.0A
D16	ED-404029J	D Zener H UTZJ10B T26
FR1 , FR3	ER-408375J	R Fuse V TO5RF25SCP1/4WR12K
FR2, FR4	ER-400728J	R Fuse V TO5RF25SCVTP1/4WR12K
FR5	ER-400605J	R Fuse V TO5ERD2FCV 1/4W15ROG
TR1	ET-381175J	TR 2SD1856
TR2, TR7	ET-366365	TR2SB1185 E,F
TR3 - TR6	ET-405622J	TR2SD2061 E,F
Model: F480EK		
D3, D4	ED-511907	D Silicon 1N4002 100/1.0A
D6, D8, D11	ED-386226J	D Schottky RB100AT-32T26 40/1
D17, D18, D71		
D72, D73, D74	ED-511907	D Silicon 1N4002 100/1.0A
FR1	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR2	ER-408375J	R Fuse V TO5 RF25SCPVT1/4WR12K
FR3	ER-400605J	R Fuse V TO5 ERD2FCV 1/4W15ROG
FR4	ER-400689J	R Fuse V TO5 RF25SCVTP1/4WR68K
FR5	ER-405441J	R Fuse V TO5 RF25SCVTP1/4WR27K
TR1, TR5		
TR9, TR13	ET-366365	TR 2SB1185 E,F
TR12	ET-405622J	TR 2SD2061 E,F
Model: F480EK		
IC1	EL-381575J	IC BA6121
TR2, TR7	ET-405622J	TR 2SD2061 E,F
TR4	ET-404195J	TR 2SC4486 S,T T05
	BT-403872J	Trans Pow V1130 EK (440EK)
	BT-403883J	Trans Pow V1130 EOG-V (480EK)
	BT-410489J	Trans Pow V1130 ES (490ES)

Mechanical Parts List		Description	Part No.	Description	Part No.
All Models:		Slider Front Loading	ML-387428J	SP Pull Main Brake	ZG-387320J
		Slider Pinch Part	ML-387431J1	SP Pull Review Brake	ZG-387323J
		SLIT W17X032X025PSL	ZW-374445	SP Pull Tension (2)	ZG-395470J
		SP Loading Brake	ZG-387467J	SP Push A/C	ZG-387438J1
		SP Plate Earth	ZG-392294J	SP Torsion Arm Damper	ZG-395567J
		SP Plate Holder	ZG-387348J1	SP Torsion Damper (S)	ZG-387421J
		SP Pull Main Brake	ZG-387320J	SP Torsion Damper (T)	ZG-388290J1
		SP Pull Review Brake	ZG-387323J	SP Torsion Joint (2)	ZG-392831J
		SP Pull Tension	ZG-387272J	SP Torsion Load (S)	ZG-387417J
		SP Push A/C	ZG-387438J1	SP Torsion Load (T)	ZG-387418J
		SP Torsion Arm Damper	ZG-395567J	SP Torsion Release	ZG-387420J1
		SP Torsion Damper (S)	ZG-387421J	SP Torsion Review	ZG-387282J
		SP Torsion Damper (T)	ZG-8290J1	ST BID30X06STL CMT	ZS-358936
		SP Torsion Joint (2)	ZG-392831J	ST BID30X12STL CMT	ZS-336714
		SP Torsion Load (S)	ZG-387417J		
		SP Torsion Load (T)	ZG-387418J	Tension Arm Blk F600EA	BL-V1123A050A
		SP Torsion Release	ZG-387420J1	Holder Lever Tension	SZ-3872631J4
		SP Torsion Review	ZG-387282J	Tension Band Part	ML-390768J4
				Tension Brake Part	MZ-395471J3
For Models:				For Models:	
		VS-F490EM/EO/EOH/ES		VS-F480EK-V/EOG-V	
		VS-F497EOH		VS-F490EM/EO/EOH/ES	
		VS-F480EK-V/EOG-V		VS-F497EOH	
		6SET20X030SCM PKR FP	ZS-374458	Arm Coupling	ML-387311J2
		6SET30X080SCM PKR CP	ZG-373900	Belt Capstan (3)	MB-407117J
				PC (#) Sensor (2)KFX	EA-404543J
		Arm Damper	ML-391745J3	BID30X03STL CMT	ZS-425981
		Arm Lid Opener	ML-387350J1		
		Arm Loading BLK 425EA	BL-V1102A140A	Capstan Brake Part	LK-387458J2
		Arm Pinch Roller		Cord FFC P1.25 L=12013P (WP1)	EW-389313J
		BLK F410EK	BL-V1130A160A		
		Arm Review Part	ML-387277J3	D LED GL451 Infrared (D1)	ED-390011J
		Arm Shutter	ML-387349J2	Detector SG-105LF (PH1)(PH2)	ET-403420J
				Disk Clutch (2) Part	MZ-404577J
		BID30X08STL CMT	ZS-321298		
		Cassette Load BLK 425EA	BV-V1102A150A	Gear Cam Slider (3)	MZ-404538J
		Cushion Cover	SZ-391866J1	Gear Front Loading	MZ-387333J
		DISK (3) Part	MT-404547J	Gear Toggle(S) BLK 425EA	MZ-V1102A090A
		DT BID30X06STL CMT C080	ZS-389853J	Gear Toggle(T) BLK 425EA	MZ-V1102A100A
				Gear Worm (2)	MZ-401686J1
		Gear Eject	MZ-387335J	Gear Worm Wheel	MZ-387332J
		Gear MID Part	MZ-404995J		
		Guide Front (2)	SE-395554J	Holder D-LED	MZ-387430J
		Guide Roller D8 Part	VT-387394J1	Holder Photo Sensor (2)	MZ-404542J
				Holder S Sensor	MZ-387445J
		Head Combo HVMZA1121A	HR-405340J	Holder Thrust Worm	MR-387406J
		Head E HVFME0020A	HE-390013J		
		Holder FE Head Part B	MZ-402760J2	Lever Trigger	ML-387402J1
		Idler (2) Part	MI-404552J	Motor DFX-67B3VWB1 (Capstan Motor)	BM-400682J1
				Motor Part (Loading Motor)	BM-387503J
		Leader S BLK 425EA	BV-V1102A070A		
		Leader T BLK 425EA	BV-V1102A080A	PT BID26X06STL CMT	ZS-365149
		Lever Damper (S)	ML-387345J	PT BID26X10STL CMT	ZS-389950J
		Lever Damper (T)	ML-387346J	Pulley Trigger (2)	MR-391968J
		Lever Lock Release	ML-387344J	PW26X060X050PSL	ZW-389923J
		Main Brake (S) Part	ML-387316J	Slider Brake (3) Part	ML-404567J1
		Main Brake (T) Part	ML-387318J	Slider Trigger (2)	ML-404944J
		Mecha Deck BLK F410EK	B-V1130A020C	SLIT W21X040X050PSL	ZW-387492J
		Nut Review	ZW-401776J	Socket 174074-5 SP (P1)	EJ-381837J
				Socket Housing	
		PAN20X02STL BZN PS1	ZS-404844J	5062-30-10-13 (PS1)	EJ-387497J
		Pinch Roller (2) Part	MP-404852J	SP Pull Capstan Brake	ZG-387502J
		Plate Upper	MZ-387351J2	SP Pull Slider	ZG-387468J
		PW31X110X050PSL	ZW-389814J	SP Pull Toggle	ZG-387413J1
				SP Torsion Coupling	ZG-387403J
		Retaining Ring Grip		SP Trigger	ZG-387443J
		380STL ACP	ZW-332843	ST BID30X06STL CMT	ZS-358936
		Review Brake (3) Part	ML-407119J	SW Leaf MTS10110MPC1	ES-373099
		Roller Impedance	MR-387286J1	SW Mode Select	
				MMS000702LBO (SW1)	ES-387465J
		Slider Front Loading	ML-387428J		
		Slider Pinch Part	ML-387431J1	TR Photo PN268 (TR1)	ET-361490
		SLIT W17X032X025PSL	ZW-374445	TR Photo PT493F (TR4)	ET-390009J
		SP Plate Earth	ZG-392294J		
		SP Plate Holder	ZG-387348J1		

Replacement of the Gear Mid Part (JFX Only)



- 1) Remove the REVIEW BRAKE PART and IDLER (2) PART.
- 2) Release the stopper of the TAKE UP REEL TABLE, then remove it.
- 3) Remove the two "A" screws then replace the GEAR MID PART as shown above.
- 4) Reassemble in reverse order.

Electrical Adjustments

Precautionary items prior to adjustments

1. The colour bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV).

The following test tapes are required.

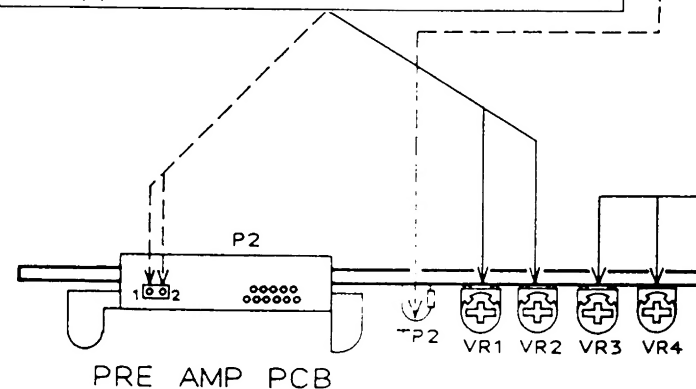
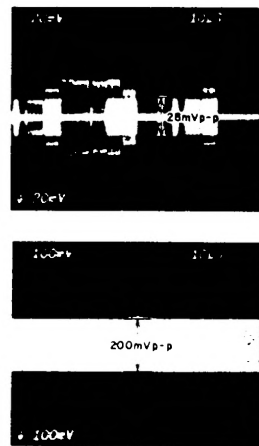
Test tape	Parts No.
TF-527BL	AT-711880
TF-530RFS	AT-751775
TF-532CBS	AT-751360
TF-553AT	AT-751785

STEP ADJUSTMENT ITEM

1. MODE and INPUT SIGNAL/TEST TAPE
2. TEST POINT and ADJ. part
3. REMARKS (*) & RESULT (*)

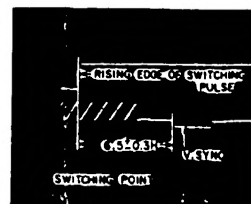
6 VIDEO REC CURRENT (LP MODE)

1. "REC" (LP MODE), PAL colour bar signal
2. P2 (REC.CURR) ① pin, ② pin & VR1 (REC-CHROMA), VR2 (REC-Y)
3. • Connect an oscilloscope's CH-1 to P2 (REC.CURR) ① pin and CH-2 to ② pin.
 - Set the oscilloscope's display mode to "ADD" mode and CH-2 polarity to "INVERTED". (Make sure to set the oscilloscope's "volt / div" SW position where the waveform is not distorted and CH-2 position should be the same as CH-1.)
 - Turn the VR2 (REC-Y) fully, counterclockwise.
 - * Adjust VR1 (REC-CHROMA) so that the chroma REC current becomes 28 mVp-p at the burst signal area.
 - * Disconnect the input signal, then adjust VR2 (REC-Y) so that the Y REC current becomes 200 mVp-p.



1 PB SWITCHING POINT

1. "PB", test tape TF-530RFS
2. TP2 (SWP), VIDEO OUT & VR301 (SW.POINT)
3. • Connect an oscilloscope's CH-1 to TP2 (SWP) for triggering and CH-2 to VIDEO OUT.
 - * Adjust VR301 so that the switching point is positioned 6.5 H from the V-SYNC left edge as shown.



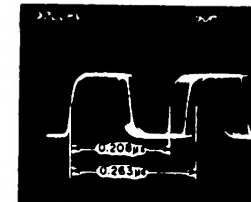
7 VIDEO PB LEVEL

1. "REC" → "PB", PAL colour bar signal
2. VIDEO OUT & VR404 (PB LEVEL)
3. • Connect an oscilloscope to VIDEO OUT
 - Make a recording on the tape, then play it back
 - * Adjust VR404 so that the PB level becomes 1.0 Vp-p



5 CARRIER SET & DEVIATION

1. "REC", PAL colour bar signal
2. TP401 (REC.Y) & VR402 (CARRIER), VR403 (DEVIATION)
3. • Connect an oscilloscope to TP401 (REC.Y)
 - * VR402 (CARRIER) : 0.263 μs (3.8 MHz)
 - * VR403 (DEVIATION) : 0.208 μs (4.8 MHz)



3 AUDIO REC BIAS

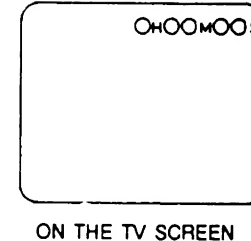
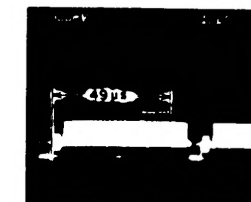
1. "REC", No signal input
2. P801 ① pin, ② pin & VR801
3. • Connect an AC voltmeter to P806 ① pin (GND side) and ② pin. (Never connect the AC voltmeter's GND to the VCR's ground.)
 - * Adjust VR801 so that the reading on the AC voltmeter becomes 2.4 mV

2 AUDIO PB LEVEL

1. "PB", test tape TF-527BL
2. AUDIO OUT & VR802
3. • Connect AC voltmeter to AUDIO OUT
 - * -5 dBs

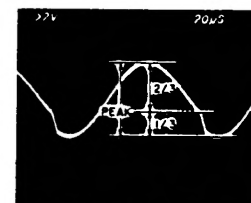
8 CHARACTER POSITION

1. "E-E" (STOP mode), No signal input
2. VIDEO OUT, TV screen & VC601 (IMS)
3. • Press the "DISPLAY" button once on the remote control to display the elapsed tape counter.
 - Connect an oscilloscope to VIDEO OUT
 - * Adjust VC601 (IMS) so that the right end of the IMS signal becomes 49 μs from the H-SYNC as shown.



9 P/S AUTO SENSITIVITY (EM/EDG/EOG-V ONLY)

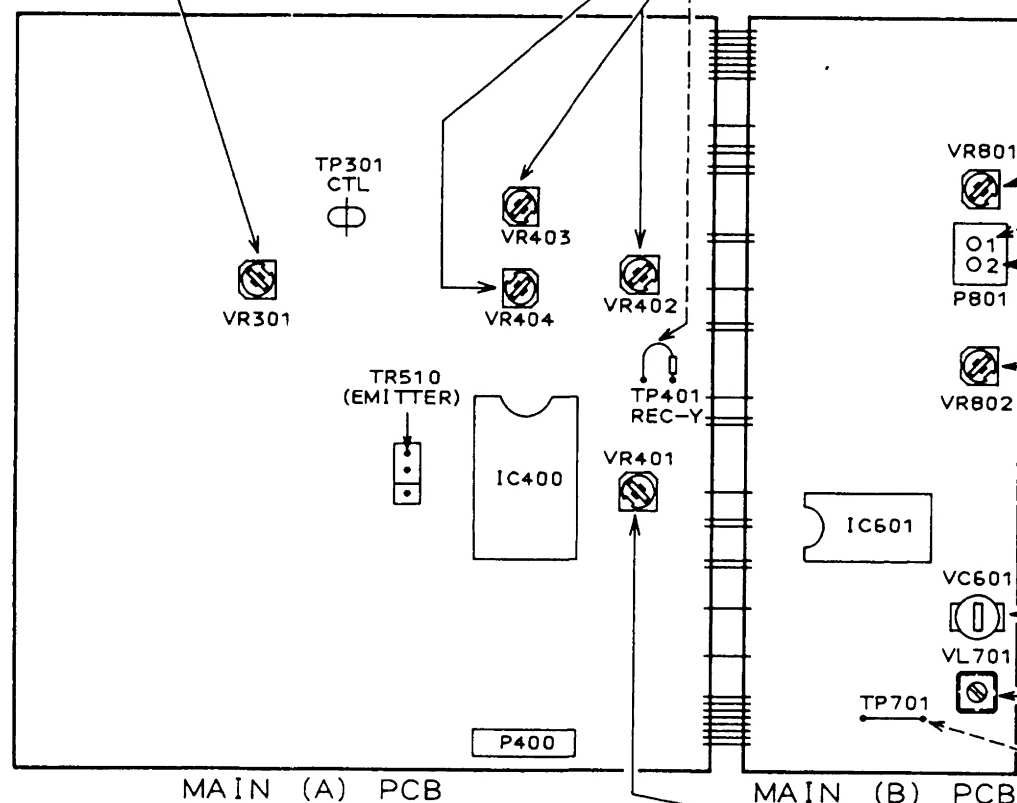
1. "E-E" (STOP mode), SECAM colour bar signal
2. TP701 (P/S SENS), VL701 (P/S SENS)
3. • Connect an oscilloscope to TP701 (P/S SENS)
 - * Adjust the VL701 so that the distorted point of the waveform becomes 1/3 from the bottom, as shown.



10 ENVELOPE DETECT (I-HQ)

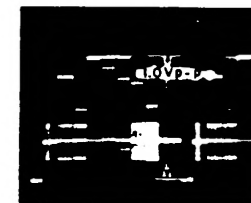
(This adjustment should be performed in the "TEST" mode.) To set the VCR to the "TEST MODE", press and hold both the "POWER" and "EJECT" buttons on the front panel, then plug in the AC power cord. The TEST MODE can be cancelled by disconnecting the AC power cord or simply by pressing the RESET button on the front panel.

1. "REC" → "PB", PAL colour bar signal
2. FL display & VR3, VR4
3. • Record the PAL colour bar signal on the test tape TF-553AT and then play it back.
 - Observe the number which is displayed on the minute part of the FL display.
 - * Adjust the VR3 so that the number displayed on the FL display becomes "8D". (SP MODE)
 - * Adjust the VR4 so that the number displayed on the FL display becomes "8D". (LP MODE)



4 VIDEO E-E LEVEL

1. "E-E" (STOP mode), PAL colour bar signal
2. VIDEO OUT & VR401 (E-E LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
 - * 1.0 Vp-p





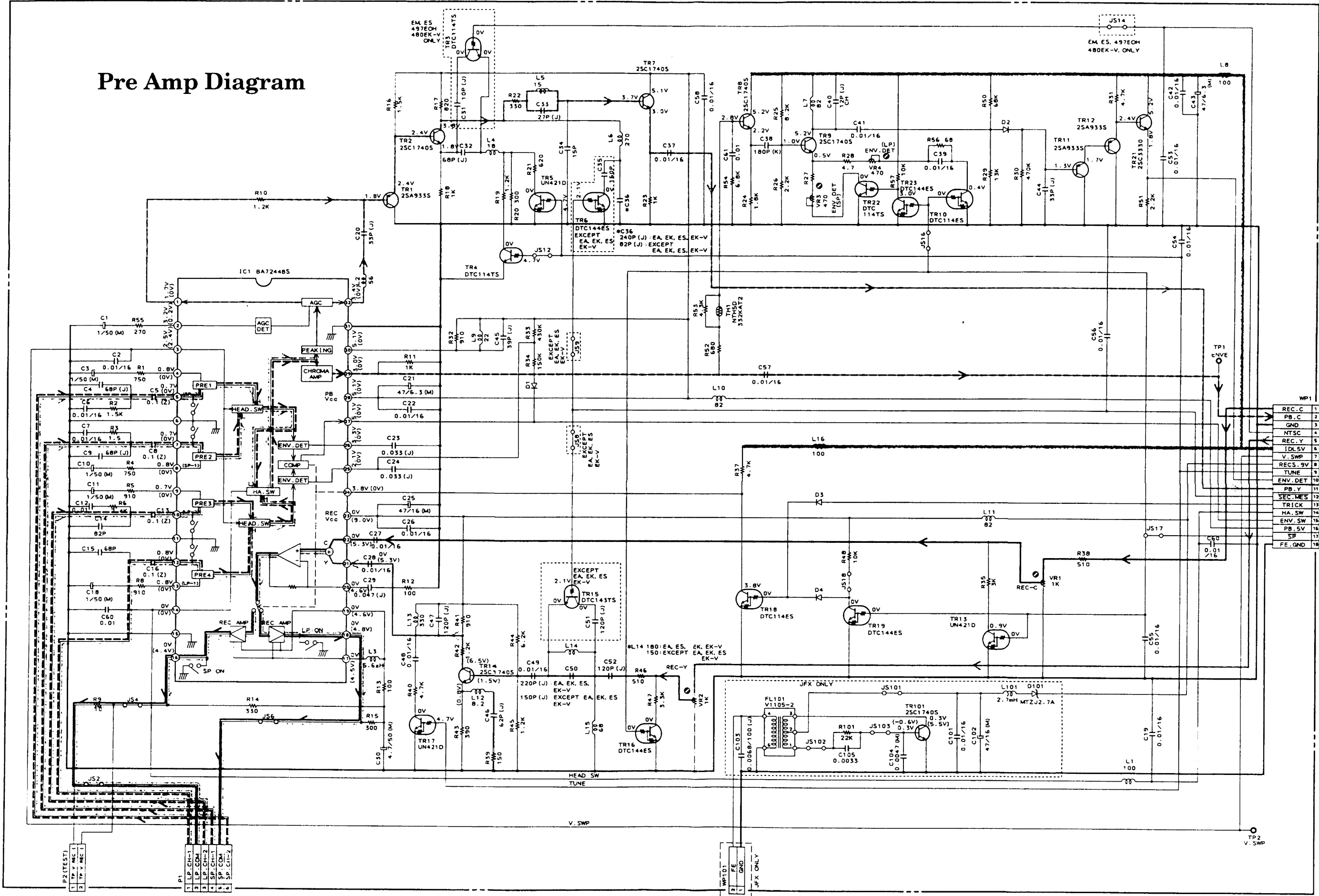
MAIN(A) PCB 3/3 V1130A501A

NOTE: UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN P.F. (P.P.M.)
ALL ELECTROLYTIC CAPACITORS IN MFD.
ALL INDUCTORS IN MHK.
TRANSISTORS ARE 2SA1317(PNP) OR 2SC3330(NPN)
ALL DIODES ARE 1SS131

WARNING: AND INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

LEGEND:
BIPOLAR SUPPLY LINE
AUDIO OUT (E-E, PB) LINE
AUDIO IN (E-E, REC) LINE
VIDEO OUT (E-E, PB) LINE
VIDEO IN (E-E, REC) LINE

Pre Amp Diagram



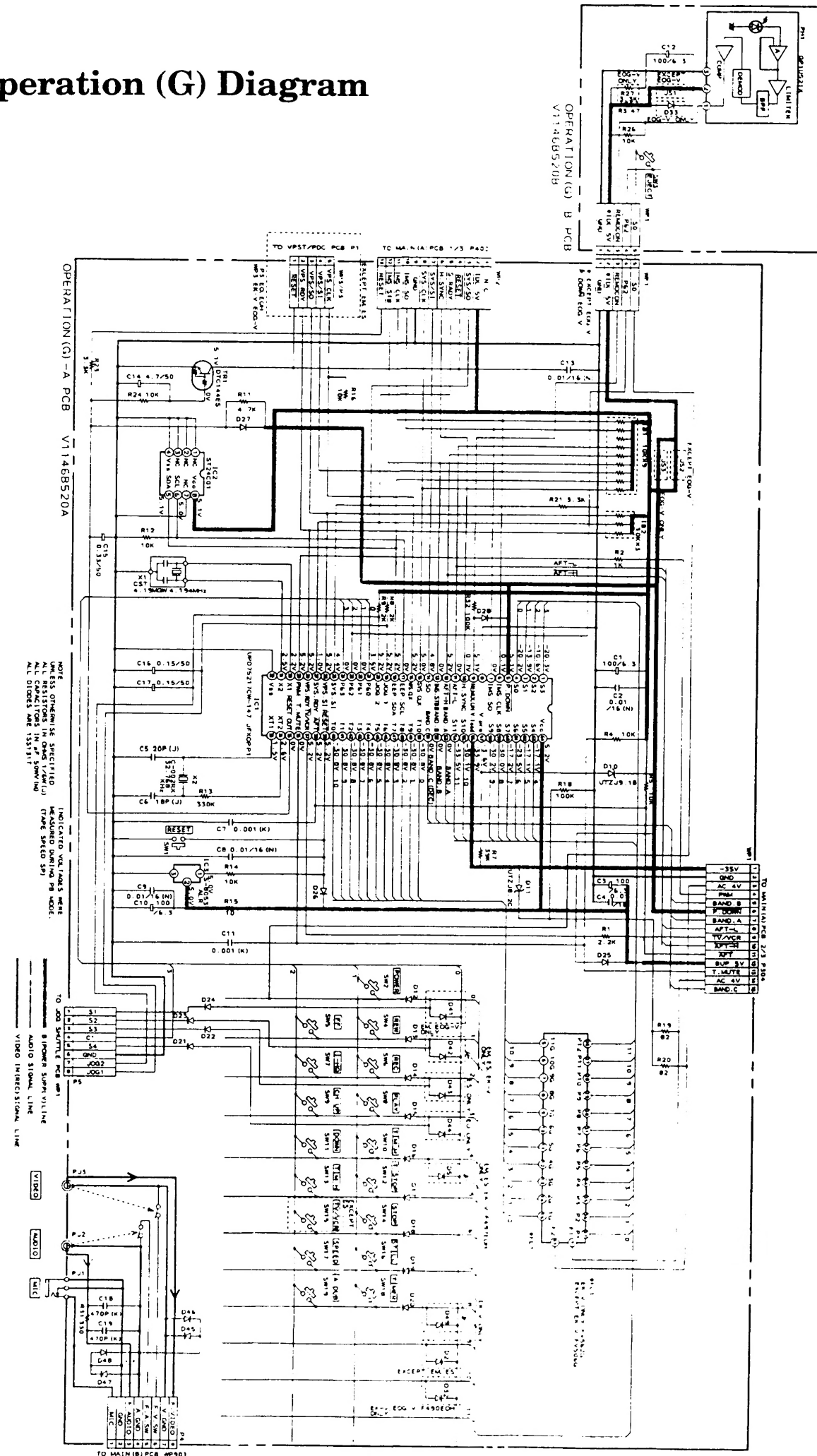
8 (POWER SUPPLY) LINE
PB. Y SIGNAL LINE
REC. Y SIGNAL LINE
PB. CHROMA SIGNAL LINE
REC. CHROMA SIGNAL LINE

INDICATED VOLTAGES WERE
MEASURED DURING PB. MODE.
() REC. MODE

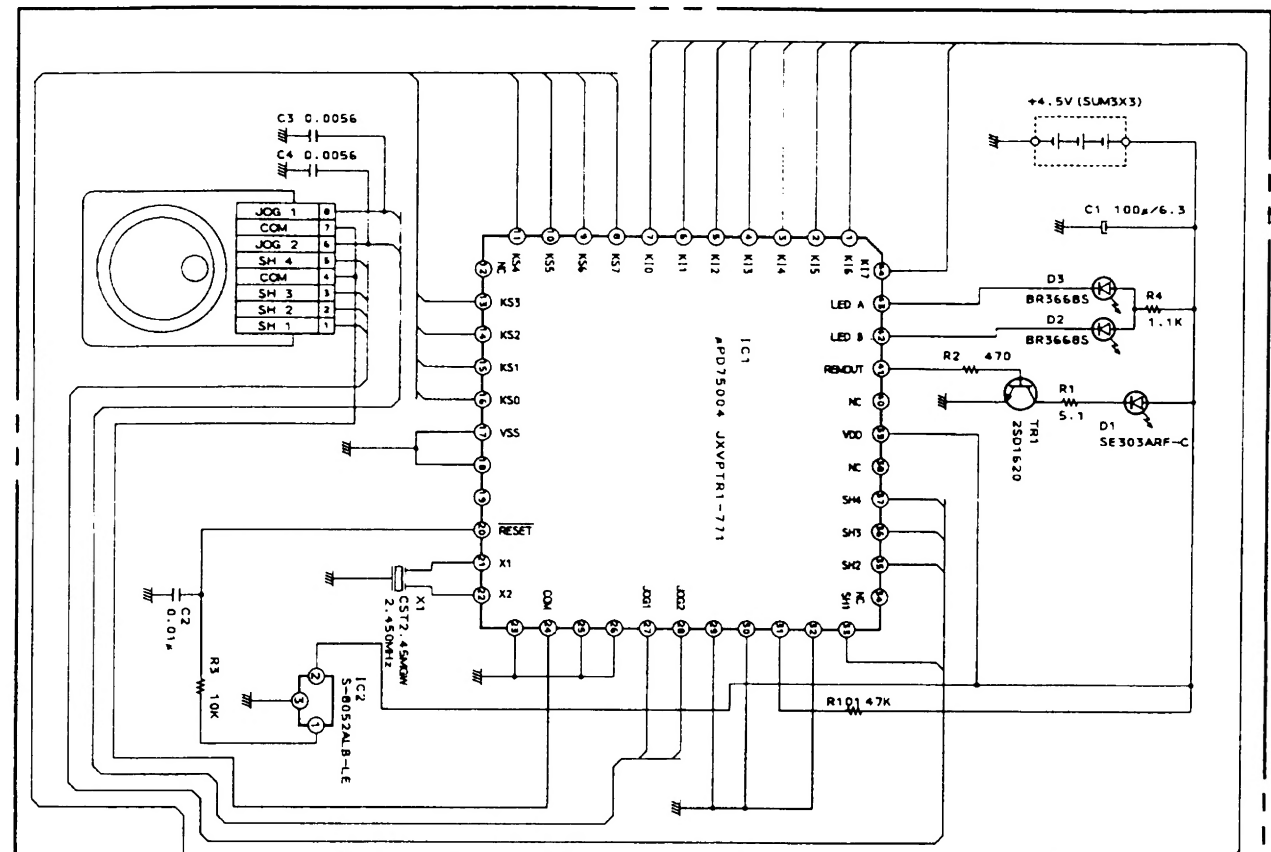
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μ F
ALL INDUCTORS IN μ H (K)
ALL DIODES ARE 1SS131
TRANSISTORS 2SA933S AND 2SC1740 CAN BE
SUBSTITUTED FOR 2SA1317 AND 2SC3330 RESPECTIVELY

JFX/JFX-L
PRE AMP

Operation (G) Diagram



Remote Control Diagram RC-V451E



K10	TV/MCR	1		0	AV	SCALE	3	2
K11	SHIFT<	4	TEXT/TV	7	0	3	6	5
K12	SHIFT V		REW		000 SHUTTLE			
K13	SHIFT A	1-HQ	RED	PLAY	FF	GREEN	CYAN	YELLOW
K14	S/N CANCEL	REMAIN	INDEX		CHANNEL		DISPLAY	COUNTER RESET
K15	SHIFT>	TIMER	STOP		00 PAUSE / STILL		INDEX	DOUBLE HEIGHT
K16	AUTO TRACKING	REC	POWER	EJECT	MONITOR		CH UP A	CH DOWN V
K17	OK	PROG LIST	VPT	PROGRAM		STOP	NEXT	MENU

UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS 1/8W (J) ALL CAPACITORS IN μ F 50WV (J)	NOTE UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS 1/8W (J) ALL CAPACITORS IN μ F 50WV (J)
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RC-V451E/G

RC-V452E